

Abstract of the Disclosure

A quantum cipher communication system includes a sender's apparatus, a recipient's apparatus and a transmission path. The sender's apparatus includes a beam splitting for splitting a laser beam into a weak signal light and an intense reference light, a phase modulation unit for imparting a phase change on either the weak signal light or the intense reference light. The recipient's apparatus includes a phase modulation unit for imparting a phase change on either the weak signal light or the intense reference light, a superimposing unit for superimposing the weak signal light and the intense reference light, a pair of photoconductive diodes for converting two output lights from the superimposing unit into electric signals, and an amplifying unit for amplifying a difference signal between the electric signals, wherein the recipient assigns bit values by comparing the difference signal with threshold values.